Atoms WANT to fill their valence. Outer electron shells. They are MOST stable when their shells are completely filled with electrons. Atoms will “share” or “steal” electrons from neighboring atoms TEMPORARILY to fill their shells.

Type of bonding where atoms “share” electrons = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Type of bonding where atoms “steal” electrons = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

We can determine the electron structure of elements by reading the Mendeleyev Periodic Table. We can also predict how elements will bond with each other another based on how many “free” spaces they have in their valence or outer electron shells.

Number of free spaces in the 1st shell: \_\_\_\_\_\_\_

Number of free spaces in the 2nd shell: \_\_\_\_\_\_

Number of free spaces in the 3rd shell: \_\_\_\_\_\_

The period (or row) tells us how many valence \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_the element has.

The group (or column) tells us how many valence \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_the element has.

Elements in Group 18 (e.g. Helium, Neon and Argon) are SPECIAL because their valence shells are already full! We call these \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_. They do not tend to bond with other atoms.

Draw the Bohr model for

|  |  |  |  |
| --- | --- | --- | --- |
| Florine  Atomic # 9 | Sulfur  Atomic # 16 | Argon  Atomic #18 | Zinc  Atomic # 30 |
|  |  |  |  |

Which of the above elements is Iron (Atomic #) MOST LIKELY to bond with? Explain why. HINT let the number of electrons needed to fill the valence shells of each element be your guide.

Which of the above elements is Sodium (Atomic # 11) MOST LIKELY to bond with? Explain why. HINT let the number of electrons needed to fill the valence shells of each element be your guide.

